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Biotech-Chem Library

STIC Database Tracking Number: 153637

TO: Jezia Riley
Location: REM-2A31&2C18
Art Unit: 1637
Monday, May 23, 2005

Case Serial Number: 10/082714

From: Mary Jane Ruhl
Location: Biotech-Chem Library
Remsen 1-A-62
Phone: 571-272-2524

maryjane.ruhl@uspto.gov

Search Notes

Examiner Riley,

Here are the results for your recent search request.

Please feel free to contact me if you have any questions about these results.

Thank you for using STIC services. We appreciate the opportunity to serve you.

Sincerely,

Mary Jane Ruhl
Technical Information Specialist
STIC
Remsen 1-A-62
Ext. 22524

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     FILE 'HCAPLUS' ENTERED AT 14:49:48 ON 23 MAY 2005
                ACT RIL714L21/A
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L1   (         1)SEA ABB=ON  "NUCLEIC ACIDS"/CN
L2   (     21888)SEA ABB=ON  ?SENSOR? AND (?CIRCUIT?(W)?BOARD? OR ?APPARATUS?)
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L4   (       234)SEA ABB=ON  L3 AND ?HYBRIDIZ?
L5   (        41)SEA ABB=ON  L4 AND (?PULS? OR ?AMPEROMETRIC? OR ?MEMORY?(W)?CHI
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                   OR ?ADJUST? OR ?MODIFY?) OR ?SINGLE?(W)KEY? OR KIT?)
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L8   (         3)SEA ABB=ON  L5 AND ?TARGET?(3A)?NUCLEIC?(W)?ACID?
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L10           8 SEA ABB=ON  L9 AND (?PATHOGEN? OR ?CANCER? OR ?CARCIN? OR
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L19           34 SEA ABB=ON  L16 OR L17 OR L18

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     14:50:43 ON 23 MAY 2005
L20            9 SEA ABB=ON  L10
L21            9 DUP REMOV L20 (0 DUPLICATES REMOVED)

     FILE 'HCAPLUS' ENTERED AT 14:57:00 ON 23 MAY 2005
L22           34 SEA ABB=ON  L10 OR L19
L23           30 SEA ABB=ON  L22 AND (PRD<20020225 OR PD<20020225)

     FILE HCAPLUS

     FILE COVERS 1907 - 23 May 2005  VOL 142 ISS 22
     FILE LAST UPDATED: 22 May 2005  (20050522/ED)

     FILE BIOSIS
     FILE COVERS 1969 TO DATE.
     CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT
     FROM JANUARY 1969 TO DATE.

     RECORDS LAST ADDED: 18 May 2005 (20050518/ED)

     FILE RELOADED: 19 October 2003.
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9 cits from above databases

30 cits from CAPlus

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=> d que stat l23
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L9   (        34)SEA FILE=HCAPLUS ABB=ON  L6 OR L7 OR L8
L10           8 SEA FILE=HCAPLUS ABB=ON  L9 AND (?PATHOGEN? OR ?CANCER? OR
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L22          34 SEA FILE=HCAPLUS ABB=ON  L10 OR L19
L23          30 SEA FILE=HCAPLUS ABB=ON  L22 AND (PRD<20020225 OR PD<20020225)

=> d ibib abs l23 1-30

L23  ANSWER 1 OF 30  HCAPLUS  COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER:         2004:212120  HCAPLUS
DOCUMENT NUMBER:          140:232076
TITLE:                    Systems and devices for photoelectrophoretic transport
                          and hybridization of oligonucleotides
INVENTOR(S):              Edman, Carl Frederick; Heller, Michael James; Gurtner,
                          Christian; Formosa, Rachel
PATENT ASSIGNEE(S):       Nanogen, Inc., USA
SOURCE:                   U.S., 79 pp., Cont.-in-part of U.S. 6,569,382.
                          CODEN: USXXAM
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   44
PATENT INFORMATION:

     PATENT NO.           KIND   DATE        APPLICATION NO.         DATE
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     US 6706473            B1    20040316    US 2000-489855          20000124 <--
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US 6652808	B1	20031125	US 1996-760933	19961206 <--
US 6569382	B1	20030527	US 1999-436311	19991108 <--
WO 2001053799	A1	20010726	WO 2001-US926	20010112 <--
W: AU, BR, CA, CN, JP, NZ				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
AU 777515	B2	20041021	AU 2001-61873	20010817 <--
US 2004209355	A1	20041021	US 2004-772744	20040204 <--

PRIORITY APPLN. INFO.:

US 1996-760933	A2	19961206 <--
US 1999-436311	A2	19991108 <--
US 1991-790262	B2	19911107 <--
US 1993-146504	A2	19931101 <--
US 1994-232233	A1	19940505 <--
US 1994-250951	A1	19940527 <--
US 1994-258168	A1	19940610 <--
US 1994-271882	A2	19940707 <--
US 1994-304657	A2	19940909 <--
US 1995-534454	A2	19950927 <--
US 1996-703601	A2	19960823 <--
US 1997-855058	A2	19970514 <--
US 1997-906569	A1	19970805 <--
US 1997-968065	A1	19971205 <--
US 1998-129740	A2	19980805 <--
AU 1998-85228	A3	19980917 <--
US 2000-489855	A	20000124 <--

AB A platform for photoelectrophoretic transport and electronic **hybridization** of fluorescence labeled **DNA** oligonucleotides in a low conductivity electrolyte is described. A chemical stabilized semiconductor photodiode or photoconductor surface is coated with a streptavidin-agarose permeation layer. Micro-illumination of the surface generates photo-**electrochem.** currents that are used to electrophoretically transport and attach capture strands, preferably biotinylated **DNA**, to arbitrarily selected locations. The same process is then used to transport and electronically **hybridize** fluorescence labeled **DNA** target strands to the previously attached capture strands. Signal detection is accomplished either by a fluorescence scanner or a CCD camera. This represents a flexible electronic **DNA** assay platform that need not rely on pre-patterned microelectronic arrays.

REFERENCE COUNT: 169 THERE ARE 169 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 2 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:717611 HCAPLUS
DOCUMENT NUMBER: 139:242573
TITLE: Electrical treatment of binding media to encourage, discourage and/or study biopolymer binding
INVENTOR(S): Erikson, Glen H.; Daksis, Jasmine I.
PATENT ASSIGNEE(S): Ingeneus Corporation, Barbados
SOURCE: U.S. Pat. Appl. Publ., 44 pp., Cont.-in-part of U. S. Ser. No. 120,092.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 6
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

US 2003170659	A1	20030911	US 2002-189211	20020703 <--
US 6265170	B1	20010724	US 2000-490273	20000124 <--
US 2002137056	A1	20020926	US 2001-911047	20010723 <--
US 6613524	B1	20030902	US 2001-998155	20011129 <--
US 2002123066	A1	20020905	US 2002-120092	20020410 <--

PRIORITY APPLN. INFO.:

US 2000-490273	A2 20000124 <--
US 2001-911047	A2 20010723 <--
US 2001-998155	A2 20011129 <--
US 2002-120092	A2 20020410

AB A method for influencing binding of a first biopolymer to a second biopolymer includes applying an elec. charge to a binding medium in which the first and second biopolymers are to be bonded together, wherein the elec. charge is applied sufficiently to enhance or diminish a binding characteristic of the binding to thereby influence the binding, provided that the binding characteristic is not denaturation of the first and second biopolymers from each other or from another biopolymer. Binding studies were done using YOYO-1 and synthesized fragments of sequences derived from exon 10 of human cystic fibrosis gene.

L23 ANSWER 3 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:688924 HCAPLUS
DOCUMENT NUMBER: 139:225433
TITLE: Cleavable tags detectable with spectrometry or potentiometry and uses for size separation and detection of **nucleic acids**
INVENTOR(S): Van Ness, Jeffrey; Tabone, John C.; Howbert, J. Jeffry; Mulligan, John T.
PATENT ASSIGNEE(S): Qiagen Genomics, Inc., USA
SOURCE: U.S., 109 pp., Cont.-in-part of U.S. Ser. No. 796,834, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 7
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6613508	B1	20030902	US 1997-898564	19970722 <--
EP 962537	A2	19991208	EP 1999-110780	19970123 <--
EP 962537	A3	20040211		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
CA 2297158	AA	19990204	CA 1998-2297158	19980722 <--
WO 9905319	A2	19990204	WO 1998-US15008	19980722 <--
WO 9905319	A3	19990514		
W: AL, AM, AT, AU, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9885765	A1	19990216	AU 1998-85765	19980722 <--
AU 738237	B2	20010913		
EP 990047	A2	20000405	EP 1998-936928	19980722 <--
EP 990047	B1	20030514		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI

JP 2001511359	T2	20010814	JP 2000-504286		19980722	<--
NZ 501919	A	20011130	NZ 1998-501919		19980722	<--
AT 240408	E	20030515	AT 1998-936928		19980722	<--
PT 990047	T	20031031	PT 1998-936928		19980722	<--
ES 2200355	T3	20040301	ES 1998-936928		19980722	<--
PRIORITY APPLN. INFO.:			US 1996-14536P	P	19960123	<--
			US 1996-20487P	P	19960604	<--
			US 1997-786834	B2	19970122	<--
			EP 1997-905603	A	19970123	<--
			US 1997-898180	A	19970722	<--
			US 1997-898501	A	19970722	<--
			US 1997-898564	A	19970722	<--
			WO 1998-US15008	W	19980722	<--

AB Tags and linkers specifically designed for a wide variety of **nucleic acid** reactions are disclosed, which are suitable for a wide variety of **nucleic acid** reactions wherein separation of **nucleic acid** mols. based upon size is required. Variable mol. weight tags which may be covalently attached to **nucleic acids** and removed by a variety of methods (such as acid cleavage or photolysis) are disclosed. Thus, primers or probes may be labeled with these tags and detection by mass spectrometry of a particular mass fragment is indicative of the presence of the target sequence. The synthesis of CMSTs (Cleavable, Mass Spectrometry-detectable Tags) is described. Examples include synthesis of pentafluorophenyl esters of cleavable mass spectroscopy tags. Methods for using tags in identification of **nucleic acids**, genotyping, fingerprinting, PCR amplification of microsatellite **DNA**, and detection of single nucleotide polymorphisms are disclosed.

REFERENCE COUNT: 128 THERE ARE 128 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 4 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:551636 HCAPLUS
DOCUMENT NUMBER: 139:81605
TITLE: **Nucleic acid hybridization** -based biosensing devices and methods utilizing intelligently designed oligonucleotide probe sets
INVENTOR(S): Powdrill, Thomas F.; Belosludtsev, Yuri Y.
PATENT ASSIGNEE(S): USA
SOURCE: PCT Int. Appl., 53 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
WO 2003057858	A2	20030717	WO 2003-US69	20030102	<--
WO 2003057858	A3	20031231			

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2002-345210P P 20020103 <--
US 2002-327782 A1 20021223

AB The present invention provides a new **nucleic acid hybridization**-based biosensing device wherein the same can be utilized for detecting and differentiating microorganisms, or differentiating at the **DNA** or **RNA** level between cell types of the same species. The implementation of the invention relies on the differential **hybridization** of genomic **DNA**, extrachromosomal **DNA**, **mRNA**, or rRNA from different sources to a single or small number of intelligently designed oligonucleotide probes. The design of the probes not only accounts for principles governing **nucleic acid hybridization** on solid supports, but also allows for and, in fact, exploits deviations from predicted ideal **hybridization** behavior for individual probes. Interrogation of multiple species or sources of complex **nucleic acid** populations as systems using common arrays allows for the design of array-based universal **biosensors** or other bioanal. devices without explicit prior knowledge of sequence content and without the use of cumbersome and, in some instances, unreliable bioinformatic tools for individual probe design.

L23 ANSWER 5 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:454920 HCAPLUS
DOCUMENT NUMBER: 139:32899
TITLE: **Electrochemical** method for detecting water-borne **pathogens**
INVENTOR(S): Fritsch, Ingrid; Beitle, Robert; Aguilar, Zoraida
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 22 pp., Cont.-in-part of U. S. Ser. No. 978,734.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003108922	A1	20030612	US 2002-252342	20020923 <--
US 2002058279	A1	20020516	US 2001-978734	20011015 <--
US 6887714	B2	20050503		

PRIORITY APPLN. INFO.: US 2000-240691P P 20001016 <--
US 2001-978734 A2 20011015 <--

AB A novel, surface immobilization **electrochem.** assay allows for rapid, accurate and highly sensitive detection of microorganisms and biol. mols. Known surface immobilization methods are utilized to bind an analyte to a surface. A binding material with a covalently attached electroactive complex generates elec. current in the presence of analyte. An **electrode** is used to detect the current, that is directly related to the concentration of analyte. The invention is especially suitable for detection of Cryptosporidium parvum. A sandwich-type immunoassay was performed in which a monoclonal IgM antibody to C. parvum was covalently attached via carboduimide coupling to 11-mercapto-1-undecanol and 11-mercapto-1-undecanoic acid self-assembled monolayers on gold

macrochips, followed by capture of C. parvum oocysts from the sample solution, and attachment of a secondary antibody, labeled with alkaline phosphatase (AP). Bare gold **macroelectrode** and a **microelectrode** were used to detect p-aminophenol enzymically generated by the AP immobilized on the modified chip from a solution of 4 mM p-aminophenyl phosphate in 0.1 M Tris buffer (pH = 9). The detection limit for the **microelectrode** detection was 7 oocysts/L.

L23 ANSWER 6 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:282035 HCAPLUS
DOCUMENT NUMBER: 138:300113
TITLE: Label-free methods for performing assays using a colorimetric resonant reflectance optical **biosensor**
INVENTOR(S): Lin, Bo; Pepper, Jane; Cunningham, Brian T.; Gerstenmaier, John; Li, Peter; Qiu, Jean; Pien, Homer
PATENT ASSIGNEE(S): SRU Biosystems LLC, USA
SOURCE: U.S. Pat. Appl. Publ., 65 pp., Cont.-in-part of U.S. Ser. No. 227,908.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 15
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE	
US 2003068657	A1	20030410	US 2002-237641		20020909	<--
US 2002127565	A1	20020912	US 2001-930352		20010815	<--
US 2003210396	A1	20031113	US 2001-1069		20011030	<--
US 6870624	B2	20050322				
US 2003027327	A1	20030206	US 2002-58626		20020128	<--
US 2003027328	A1	20030206	US 2002-59060		20020128	<--
US 2003032039	A1	20030213	US 2002-180647		20020626	<--
US 2003059855	A1	20030327	US 2002-180374		20020626	<--
US 2003113766	A1	20030619	US 2002-227908		20020826	<--
US 2004132214	A1	20040708	US 2003-667696		20030922	<--
PRIORITY APPLN. INFO.:			US 2000-244312P	P	20001030	<--
			US 2001-283314P	P	20010412	<--
			US 2001-303028P	P	20010703	<--
			US 2001-930352	A2	20010815	<--
			US 2002-58626	A2	20020128	<--
			US 2002-59060	A2	20020128	<--
			US 2002-180374	A2	20020626	
			US 2002-180647	A2	20020626	
			US 2002-227908	A2	20020826	
			US 2001-310399P	P	20010806	<--
			JP 2001-299942	A	20010928	<--
			US 2002-52626	A2	20020117	<--
			US 2002-237641	A2	20020909	

AB Methods are provided for detecting biomol. interactions. The use of labels is not required and the methods can be performed in a high-throughput manner. The invention also relates to optical devices. **Biosensors** were used to detect protein-protein interactions, **DNA-DNA** interactions, protein-**DNA** interactions, growth of cells, interleukin 1 release from macrophages, etc.

L23 ANSWER 7 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:240142 HCAPLUS
DOCUMENT NUMBER: 138:249742
TITLE: Biological microarrays for **electrochemical** detection, and method and **apparatus** for **electrochemical** processing of them after **hybridization**
INVENTOR(S): Mihara, Makoto; Inoue, Kazuo; Yasuda, Kenji; Yuan, Ke-chun
PATENT ASSIGNEE(S): JSR Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003090818	A2	20030328	JP 2001-281734	20010917 <--
PRIORITY APPLN. INFO.:			JP 2001-281734	20010917 <--

AB The microarray for anal. of genomic **DNA** anal., etc., has a pair of **electrodes**, wherein bioprobes are fixed on one **electrode** and the other **electrode** is connectable to an **electrochem.** processing means, on a substrate. The **electrochem.** processing involves (1) **electrochem.** action between a sample and the above microarray and (2) detection of electron transfer between the sample and the microarray using an **electrochem.** detector which has (a) an elastic elec. connector having conductive parts arranged to correspond to bioprobe-free **electrodes** of the microarray and (b) an **electrochem.** signal processor. Construction of the microarray enables immobilization of multi-item probes at high d. and the processing method shortens time for binding samples to the arrays and detects signals in low noise and low background.

L23 ANSWER 8 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:203326 HCAPLUS
DOCUMENT NUMBER: 138:217819
TITLE: Microcolumn-based, high-throughput microfluidic device
INVENTOR(S): He, Lin; Peng, Jinlin; Shi, Youchun; Webb, Brian L.; Yuen, Po Ki
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 28 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003049862	A1	20030313	US 2002-155540	20020524 <--
WO 2003022421	A2	20030320	WO 2002-US28481	20020906 <--
WO 2003022421	A3	20031120		
W: CA, JP				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
US 2003124029	A1	20030703	US 2002-236120	20020906 <--
EP 1425090	A2	20040609	EP 2002-761587	20020906 <--

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK
EP 1391242 A2 20040225 EP 2003-76603 20030526
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
PRIORITY APPLN. INFO.: US 2001-317660P P 20010907 <--
US 2002-155540 A 20020524
WO 2002-US28481 W 20020906

AB A biol. assay device for use in mol. biol., pharmaceutical research, genomic anal., combinatorial chemical, and in the general field of the anal. of mols. that may be deposited on supports of various kinds is provided. Specifically, the present invention includes a fluidic or microfluidic device, which integrates fluidic capability into existing multi-well plates of standard configuration, for performing either single or continuous fluidic manipulations in a high-throughput format. Methods for the use and manufacture of these devices are also provided. **DNA** arrays were prepared using PCR-amplified human gene sequences. Assays were performed with conventional static fluidic conditions and with fluidic movement according to the invention. The **hybridization** performed with a microfluidic device of the invention achieved significant increase in **hybridization** efficiency, as reflected in the improved, overall signal of the array.

L23 ANSWER 9 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:808377 HCAPLUS
DOCUMENT NUMBER: 137:321239
TITLE: An **apparatus** for **electrochemical** detection of **DNA hybridization** utilizing doped conducting polymer-coated **electrodes** and for detection of **nucleic acids** in flowing streams
INVENTOR(S): Wang, Joseph; Jiang, Mian; Mukherjee, Baidehi; Fortes, Antonio
PATENT ASSIGNEE(S): New Mexico State University Technology Transfer Corporation, USA
SOURCE: U.S., 25 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6468785	B1	20021022	US 2000-507387	20000218 <--

PRIORITY APPLN. INFO.: US 1999-120778P P 19990219 <--
US 1999-131786P P 19990430 <--

AB The invention provides an **apparatus** for **electrochem.** detection of **DNA hybridization** utilizing oligonucleotide-containing polymer-coated **electrodes**, and an **apparatus** for **electrochem.** detection of **nucleic acids** in flowing streams using doped polymer-coated **electrodes.** Also provided are methods for detection of **DNA hybridization** and for detection of **nucleic acids** in flowing streams.

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 10 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:575283 HCAPLUS
DOCUMENT NUMBER: 137:136019
TITLE: **nucleic acid hybridization** method and **apparatus** for simultaneous detection of single nucleotide polymorphisms and gene expression profiling using restriction enzyme cleavable capture probes in the diagnosis of HIV-1 infections
INVENTOR(S): Yoo, Jae-Chern
PATENT ASSIGNEE(S): Electron-Bio, Inc., S. Korea
SOURCE: PCT Int. Appl., 133 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2002059364	A1	20020801	WO 2002-KR126		20020128 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM					
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
KR 2002063359	A	20020803	KR 2001-3956		20010127
US 2004234970	A1	20041125	US 2004-470487		20040217 <--
PRIORITY APPLN. INFO.:			KR 2001-3956	A	20010127 <--
			WO 2002-KR126	W	20020128 <--

AB A cleavable signal element applicable to quant. and qual. assay devices, using a cleavable technique specifically responsive to a complementary double strand or single strand of **nucleic acids**, and a **nucleic acid hybridization** assay method and device using the cleavable signal element are provided. The cleavable signal elements include restriction endonuclease-cleavable probe which is ligated to a capture probe at one end and attached to a solid support at the other end wherein the capture probe is **hybridized** to a **target nucleic acid.** The double-stranded restriction probe is generated by PCR using the **target nucleic acid hybridized** to the capture probe as a primer, and the double-stranded restriction probe is cleaved by a restriction endonuclease and the cleavable capture probe is removed from the solid substrate. The capture probe is preferably 5-30 nucleotides in length and has a detectable label on one end. Labels include metal microspheres and in a preferred embodiment a gold microsphere has a diameter from about 1 nm to 10 μm. Using the cleavable technique responsive to the complementary double strand or single strand of **nucleic acids**, detection sensitivity to a **target nucleic acid** can be increased, and diagnosis and detection reliability can be improved twice through in-situ detns. Through simultaneous single nucleotide polymorphism (SNP) detection and expression profile determination, more accurate diagnosis for many diseases can be achieved. The assay device can be easily modified to be suitable for detection with general

laser-based detection systems such as CD-ROM readers. Information read from the assay device is digitized as software and transmitted to and received by doctors and patients through a computer network or wirelessly, which enables construction of remote diagnosis systems. In a preferred embodiment, the method is used for detection of HIV-1 infection.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 11 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:107671 HCAPLUS
DOCUMENT NUMBER: 136:163667
TITLE: Methods for **biosensor** library synthesis and applications of use
INVENTOR(S): Minshull, Jeremy; Davis, S. Christopher; Welch, Mark; Raillard, Sun Ai; Vogel, Kurt; Krebber, Claus
PATENT ASSIGNEE(S): Maxygen, Inc., USA
SOURCE: PCT Int. Appl., 158 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002010750	A2	20020207	WO 2001-US24182	20010731 <--
WO 2002010750	A3	20030710		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2002102577	A1	20020801	US 2001-920452	20010731 <--
US 2002127623	A1	20020912	US 2001-920607	20010731 <--
EP 1373889	A2	20040102	EP 2001-957383	20010731 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				

PRIORITY APPLN. INFO.:

US 2000-222056P	P	20000731 <--
US 2000-244764P	P	20001031 <--
WO 2001-US24182	W	20010731 <--

AB The invention concerns methods for sensing test stimuli using arrays of biopolymers. Reusable library arrays of biopolymers, such **nucleic acid** variants, and expression products encoded by **nucleic acid** variants are provided. The present invention provides novel methods for detecting a wide range of biol., chemical and biochem. stimuli. The methods of the invention utilize biopolymers and arrayed libraries of biopolymers, members of which are capable of binding the biol., chemical or biochem. stimuli, and upon binding produce a detectable signal. Upon contact with the test stimulus, a test stimulus array pattern is produced and detected. The test stimulus array pattern is then compared to the calibrating array pattern enabling identification of the test stimulus. Examples provide extensive listings of suitable hormones and enzymes suitable for such **biosensor** development. Diagrams describing the **apparatus** are given.

L23 ANSWER 12 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:84560 HCAPLUS
DOCUMENT NUMBER: 136:97291
TITLE: Method for detecting **nucleic acids**, detector for **nucleic acids**, and method for producing the same
INVENTOR(S): Lee, Won Yong; Park, Je Kyun; Kim, Su Hyeon; Kim, Tae Han
PATENT ASSIGNEE(S): LG Electronics Inc., S. Korea
SOURCE: U.S., 13 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 6342359	B1	20020129	US 2000-672787		20000929 <--
KR 2001035707	A	20010507	KR 1999-42401		19991001 <--
PRIORITY APPLN. INFO.:			KR 1999-42401	A	19991001 <--

AB The present invention provides a **nucleic acid** detector for detecting a base sequences of a target **DNA** of interest, which comprises a **DNA** chip in which probe **DNA** and **electrochemiluminescent** material such as tris(2,2'-bipyridyl) metal complex, or derivs. thereof are immobilized on a surface of gold **electrode.** an **electrochem. apparatus** for applying a predetd. voltage to the **DNA** chip with respect to a reference **electrode**; and an optical measurement **apparatus** for measuring **electrochemiluminescence** generated from the **DNA** chip. The invention also discloses an **electrochem. apparatus** for applying a predetd. voltage to the **DNA** chip with respect to a reference **electrode**; and an optical measurement **apparatus** for measuring **electrochemiluminescence** generated from the **DNA** chip. The present invention also provides a method for producing the said detector for **nucleic acids**, and method for detecting **nucleic acids** using the same in a cost-saving way with high sensitivity.
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 13 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:816841 HCAPLUS
DOCUMENT NUMBER: 135:355001
TITLE: Biological identification system with microelectromechanical system and integrated circuit-based **biosensor** chip
INVENTOR(S): Gau, Jen, Jr.
PATENT ASSIGNEE(S): USA
SOURCE: PCT Int. Appl., 84 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

WO 2001083674 A1 20011108 WO 2001-US14257 20010502 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
CA 2407973 AA 20011108 CA 2001-2407973 20010502 <--
EP 1278821 A1 20030129 EP 2001-935016 20010502 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
JP 2003532090 T2 20031028 JP 2001-580284 20010502 <--
US 2002123048 A1 20020905 US 2001-848727 20010503 <--
PRIORITY APPLN. INFO.: US 2000-201603P P 20000503 <--
WO 2001-US14257 W 20010502 <--

AB A microelectromech. system (MEMS) and integrated circuit based **biosensor** (210) capable of sensing or detecting various ionic mols. and macromols. (**DNA**, **RNA**, or protein) is provided. The MEMS-based **biosensor** may utilize a **hybridization** and enzyme amplification scheme and an **electrochem.** detection scheme for sensitivity improvement and system miniaturization. The **biosensor** or **biosensors** are incorporated on a single substrate. Preferably, the **biosensor** system comprises at least two **electrodes.** The **electrodes** may comprise a working **electrode**, a reference **electrode**, and a counter (auxiliary) **electrode.** The **biosensor** or **biosensors** also provide an **apparatus** and method for confinement of reagent and/or solution in the **biosensor** or **biosensors** using surface tension at small scale. The confinement system provides controlled contacts between the reagent(s) and/or solution(s) with the components (i.e., **electrodes**) of the **biosensor** or **biosensors** using controllable surface properties and surface tension forces. The confinement system allows for incorporation of the **biosensor** or **biosensors** into a portable or handheld device and is immune to shaking and/or flipping. The invention also provides for a **biosensor** and/or **sensors** that are integrated with integrated circuit (IC) technologies. Preferably, the entire **sensor** system or systems are fabricated on a single IC substrate or chip and no external component and/or instrument is required for a complete detection system or systems. Preferably, the **sensor** system or systems are fabricated using the IC process on a silicon substrate. High specificity for Escherichia coli was achieved using ssDNA-rRNA **hybridization** and high sensitivity was achieved using enzymic amplification with peroxidase as the enzyme. The detection system was capable of detecting 1000 E. coli cells without PCR with high specificity for E. coli vs. the bacteria Bordetella bronchiseptica.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 14 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:545959 HCAPLUS
DOCUMENT NUMBER: 135:134260
TITLE: Systems and devices for photoelectrophoretic transport and **hybridization** of oligonucleotides
INVENTOR(S): Edman, Carl Frederick; Heller, Michael James; Gurtner,

Christian; Formosa, Rachel
PATENT ASSIGNEE(S): Nanogen, Inc., USA
SOURCE: PCT Int. Appl., 119 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 44
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001053799	A1	20010726	WO 2001-US926	20010112 <--
W: AU, BR, CA, CN, JP, NZ				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
US 6706473	B1	20040316	US 2000-489855	20000124 <--
AU 777515	B2	20041021	AU 2001-61873	20010817 <--

PRIORITY APPLN. INFO.:
US 2000-489855 A 20000124 <--
US 1996-760933 A2 19961206 <--
AU 1998-85228 A3 19980917 <--
US 1999-436311 A2 19991108 <--

AB A platform for photoelectrophoretic transport and electronic **hybridization** of fluorescence labeled **DNA** oligonucleotides in a low conductivity electrolyte is described. A chemical stabilized semiconductor photodiode or photoconductor surface is coated with a streptavidin-agarose permeation layer. Micro-illumination of the surface generates photo-**electrochem.** currents that are used to electrophoretically transport and attach capture strands, preferably biotinylated **DNA**, to arbitrarily selected locations. The same process is then used to transport and electronically **hybridize** fluorescence labeled **DNA** target strands to the previously attached capture strands. Signal detection is accomplished either by a fluorescence scanner or a CCD camera. This represents a flexible electronic **DNA** assay platform that need not rely on pre-patterned microelectronic arrays.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 15 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:519367 HCAPLUS
DOCUMENT NUMBER: 135:72135
TITLE: Method and **apparatus** for detection of multiple **nucleic acid** sequences and multiple antigens
INVENTOR(S): Bohannon, Robert C.
PATENT ASSIGNEE(S): United States of America as Represented by the Secretary of the Army, USA
SOURCE: U.S., 10 pp., Cont.-in-part of U.S. Ser. No. 25,470.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6261771	B1	20010717	US 1998-187718	19981109 <--

PRIORITY APPLN. INFO.:
US 1998-25470 A2 19980218 <--

AB A method and **apparatus** for detection of multiple **target**

nucleic acids and/or antigens such as hormones, antibodies, or nerve agents in a sample, involves presenting the sample to a plurality of reporter binding sites wherein each reporter binding site comprises two partially **hybridized** mols. A first of the two **hybridized** mols. is bound to the binding site and is complementary to a **target nucleic acid** or antigen, and it will therefore **hybridize** to the **target nucleic acid** or antigen and cause the release of the second **hybridized** mol. into the sample. The second **hybridized** mol. comprises a reporter **nucleic acid** sequence, which uniquely identifies the **target nucleic acid** or antigen. Subsequent PCR amplification of the unique reporter **nucleic acid** sequence using labeled primers results in multiple labeled copies of the unique **nucleic acid** sequence. The sample with the amplified and labeled copies of the unique **nucleic acid** sequence is then presented to a plurality of different collector binding sites where at least one of the sites comprises at least one collector mol. complimentary to the unique **nucleic acid** sequence. Unique **nucleic acid** sequences in the sample selectively **hybridize** to the bound complementary collector mol. and their presence is detected.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 16 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:435309 HCAPLUS
DOCUMENT NUMBER: 135:43123
TITLE: Methods and compositions relating to electrical detection of **nucleic acid** **hybridization** or peptide binding preferably using AC impedance
INVENTOR(S): Choong, Vi-en; Gallagher, Sean; Gaskin, Mike; Li, Changming; Maracas, George; Shi, Song
PATENT ASSIGNEE(S): Motorola, Inc., USA
SOURCE: PCT Int. Appl., 63 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001042508	A2	20010614	WO 2000-US33497	20001211 <--
WO 2001042508	A3	20020314		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2002051975	A1	20020502	US 1999-458533	19991209
US 2002064775	A1	20020530	US 1999-459685	19991213
US 6518024	B2	20030211		
CA 2393733	AA	20010614	CA 2000-2393733	20001211 <--
EP 1238114	A2	20020911	EP 2000-993326	20001211 <--

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

JP 2003516165	T2	20030513	JP 2001-544379		20001211 <--
US 2003096283	A1	20030522	US 2002-259532		20020927 <--
US 2003209432	A1	20031113	US 2003-149319		20030228 <--
PRIORITY APPLN. INFO.:			US 1999-458501	A	19991209 <--
			US 1999-458533	A	19991209 <--
			US 1999-459685	A	19991213 <--
			WO 2000-US33497	W	20001211 <--

AB This invention relates to the elec. detection of mol. interactions between biol. mols. The method generally rely on the mol. interactions such as **nucleic acid hybridization** or protein-protein (for example, antigen-antibody) binding reactions done on solid supports using arrays of peptides or oligonucleotides for capture binding ligands. As a result of these interactions, some electronic property of the system changes, and detection is achieved. In a preferred embodiment, the methods of the invention utilize AC impedance for the detection. In some embodiments, no **electrochem.** or other label moieties are used. In others, **electrochem.** active (ECA) labels are used to detect reactions on hydrogel arrays, including genotyping reactions such as the single base extension reaction.

L23 ANSWER 17 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER:	2001:405871 HCAPLUS
DOCUMENT NUMBER:	136:145646
TITLE:	Electronic detection of **nucleic acids**: A versatile platform for molecular diagnostics
AUTHOR(S):	Umek, Robert M.; Lin, Sharon W.; Vielmetter, Jost; Terbrueggen, Robert H.; Irvine, Bruce; Yu, C. J.; Kayyem, Jon Faiz; Yowanto, Handy; Blackburn, Gary F.; Farkas, Daniel H.; Chen, Yin-Peng
CORPORATE SOURCE:	Clinical Micro Sensors Division of Motorola, Inc., Pasadena, CA, 91105, USA
SOURCE:	Journal of Molecular Diagnostics (**2001**), 3(2), 74-84 CODEN: JMDIFP; ISSN: 1525-1578
PUBLISHER:	Association for Molecular Pathology
DOCUMENT TYPE:	Journal
LANGUAGE:	English

AB A novel platform for the electronic detection of **nucleic acids** on microarrays is introduced and shown to perform well as a selective detection system for applications in mol. diagnostics. A gold **electrode** in a printed **circuit board** is coated with a self-assembled monolayer (SAM) containing **DNA** capture probes. Unlabeled **nucleic acid** targets are immobilized on the surface of the SAM through sequence-specific **hybridization** with the **DNA** capture probe. A sep. signaling probe, containing ferrocene-modified nucleotides and complementary to the target in the region adjoining the capture probe binding site, is held in close proximity to the SAM in a sandwich complex. The SAM allows electron transfer between the immobilized ferrocenes and the gold, while insulating the **electrode** from soluble redox species, including unbound signaling probes. Here, we demonstrate sequence-specific detection of amplicons after simple dilution of the reaction product into **hybridization** buffer. In addition, single nucleotide polymorphism discrimination is shown. A genotyping chip for the C282Y single nucleotide polymorphism associated with hereditary hemochromatosis is used to confirm the genotype of six patients' **DNA.** In addition, a gene

expression-**monitoring** chip is described that surveys five genes that are differentially regulated in the cellular apoptosis response. Finally, custom modification of individual **electrodes** through sequence-specific **hybridization** demonstrates the potential of this system for infectious disease diagnostics. The versatility of the electronic detection platform makes it suitable for multiple applications in diagnostics and pharmacogenetics.

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 18 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:360286 HCAPLUS
DOCUMENT NUMBER: 134:350250
TITLE: Binding acceleration techniques for the detection of analytes
INVENTOR(S): Blackburn, Gary; Vielmetter, Jost G.; Kayyem, Jon Faiz
PATENT ASSIGNEE(S): Clinical Micro Sensors, Inc., USA
SOURCE: PCT Int. Appl., 146 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001035100	A2	20010517	WO 2000-US31233	20001113 <--
WO 2001035100	A3	20020103		
WO 2001035100	C2	20020704		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2388780	AA	20010517	CA 2000-2388780	20001113 <--
EP 1254372	A2	20021106	EP 2000-978615	20001113 <--
EP 1254372	B1	20040623		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003514227	T2	20030415	JP 2001-536580	20001113 <--
JP 3548159	B2	20040728		
AT 269977	E	20040715	AT 2000-978615	20001113 <--
AU 778556	B2	20041209	AU 2001-16063	20001113 <--
ES 2225264	T3	20050316	ES 2000-978615	20001113 <--
PRIORITY APPLN. INFO.:			US 1999-440371 A	19991112 <--
			US 1999-171981P P	19991223 <--
			WO 2000-US31233 W	20001113 <--

AB The invention relates to compns. and methods useful in the acceleration of binding of target analytes to capture ligands on surfaces. Detection proceeds through the use of an electron transfer moiety (ETM) that is associated with the target analyte, either directly of indirectly, to allow electronic detection of the ETM.

L23 ANSWER 19 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:221918 HCAPLUS

DOCUMENT NUMBER: 134:249193
TITLE: Test **kit** and **electrode** **sensor** for multi-array, multi-specific **electrochemiluminescence** testing
INVENTOR(S): Wohlstadter, Jacob N.; Wilbur, James; Sigal, George; Martin, Mark; Guo, Liang-Hong; Fischer, Alan; Leland, Jon; Billadeau, Mark A.
PATENT ASSIGNEE(S): Meso Scale Technologies, LLC, USA
SOURCE: U.S., 103 pp., Cont.-in-part of U.S. 6,066,448.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 6
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6207369	B1	20010327	US 1996-715163	19960917 <--
US 6066448	A	20000523	US 1996-611804	19960306 <--
ZA 9601925	A	19970805	ZA 1996-1925	19960308 <--
US 6140045	A	20001031	US 1997-814085	19970306 <--
CA 2265828	AA	19980326	CA 1997-2265828	19970917 <--
WO 9812539	A1	19980326	WO 1997-US16942	19970917 <--
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9746495	A1	19980414	AU 1997-46495	19970917 <--
AU 743567	B2	20020131		
ZA 9708380	A	19980417	ZA 1997-8380	19970917 <--
EP 944820	A1	19990929	EP 1997-945249	19970917 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2001503856	T2	20010321	JP 1998-514984	19970917 <--
US 6673533	B1	20040106	US 1997-932110	19970917 <--
TW 541416	B	20030711	TW 1997-86113584	19971017 <--
KR 2000036176	A	20000626	KR 1999-702230	19990316 <--
US 2001021534	A1	20010913	US 2001-771796	20010129 <--
US 2004086423	A1	20040506	US 2003-693441	20031024 <--

PRIORITY APPLN. INFO.:		
US 1995-402076	B2	19950310 <--
US 1995-402277	B2	19950310 <--
US 1996-611804	A2	19960306 <--
US 1996-12957P	P	19960306 <--
US 1996-715163	A	19960917 <--
US 1997-932110	A3	19970917 <--
WO 1997-US16942	W	19970917 <--

AB Materials and methods are provided for producing patterned multi-array, multi-sp. surfaces for use in diagnostics. The invention provides for **electrochemiluminescence** methods for detecting or measuring an analyte of interest. It also provides for novel **electrodes** for ECL assays. Materials and methods are provided for the chemical and/or phys. control of conducting domains and reagent deposition for use multiply specific testing procedures. An ECL immunoassay for TSH used a composite **electrode** of EVA and carbon fibrils. A **DNA** **hybridization** assay was performed on a fibril-polymer composite.

REFERENCE COUNT: 82 THERE ARE 82 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 20 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:152874 HCAPLUS
DOCUMENT NUMBER: 134:190332
TITLE: High sensitivity biomolecule detection with magnetic particles
INVENTOR(S): Fox, John S.
PATENT ASSIGNEE(S): USA
SOURCE: PCT Int. Appl., 59 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001014591	A1	20010301	WO 2000-US22858	20000821 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2381732	AA	20010301	CA 2000-2381732	20000821 <--
EP 1210461	A1	20020605	EP 2000-957606	20000821 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				

PRIORITY APPLN. INFO.: US 1999-150210P P 19990821 <--
WO 2000-US22858 W 20000821 <--

AB The present invention generally relates to the field of biomol. detection. More specifically, the present invention relates to compns., methods and systems for the detection and manipulation of biomols. using magnetic particles. A giant magnetoresistive ratio (GMR) **sensor** detected over three orders of magnitude (microgram-to-nanogram) of dsDNA, ssDNA, and total **RNA** in a very small volume of sample.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 21 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:115325 HCAPLUS
DOCUMENT NUMBER: 134:159833
TITLE: A printed **circuit board**, **biosensor**, and method of using same
INVENTOR(S): O'Daly, John P.; Wojciechowski, Marek; Sundseth, Rebecca; Moreno, Mario
PATENT ASSIGNEE(S): Andcare, Inc., USA
SOURCE: PCT Int. Appl., 52 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001011080	A1	20010215	WO 1999-US17620	19990804 <--

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

AU 9952538	A1	20010305	AU 1999-52538	19990804 <--

PRIORITY APPLN. INFO.: WO 1999-US17620 A 19990804 <--

AB The invention, in its various aspects and embodiments, is a printed **circuit board biosensor** and a use for the same. The printed **circuit board biosensor** comprises a printed **circuit board** and a bioreporter. The printed **circuit board** includes a working **electrode** and a reference **electrode** formed thereon. The bioreporter is operably linked to the working **electrode** and capable of generating an **electrochem.** signal upon specifically recognizing a target mol. to be detected in a sample when subjected to an **elec. potential** applied across the working and reference **electrodes.** The printed **circuit board biosensor** may, in some embodiments, comprise part of a system for detecting a target mol. in a sample. Such a system might include, in addition to the **biosensor**, means for detecting the **electrochem.** signal when a potential is applied across at least one reference **electrode** and at least one working **electrode** and/or means for applying the **elec. potential.** The printed **circuit board**, and systems including the same, may also comprise **kits** when sold with instructions on their use in accordance with the present invention.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 22 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:73447 HCAPLUS
DOCUMENT NUMBER: 134:126773
TITLE: Methods and **apparatus** for the photo-**electrochemical** detection of **nucleic acid**
INVENTOR(S): Netzel, Thomas
PATENT ASSIGNEE(S): Georgia University Research Foundation Inc., USA
SOURCE: U.S., 12 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6180350	B1	20010130	US 1999-320333	19990526 <--

PRIORITY APPLN. INFO.: US 1998-86957P P 19980526 <--

AB One embodiment of the present invention is a device and method for detecting the presence or absence of a signal **nucleic acid.** The device has comprising an **electrode** and a

first **nucleic acid** covalently bound to the **electrode.** The first **nucleic acid** has two or more donor nucleotides capable of donating an electron. The donor nucleotides have a position in the first **nucleic acid** where one donor nucleotide is proximal to the **electrode.** The first **nucleic acid** has a modified nucleotide adjacent to one of the donor nucleotides. The modified nucleotide is capable of receiving an electron from said donor nucleotides upon photo-excitation and maintaining the electron for a first period of time when the first **nucleic acid** is **unhybridized** and a second period of time when the first **nucleic acid** is **hybridized** to the signal **nucleic acid.** The first and second periods are different. The **electrode** is in communication with the first **nucleic acid** to receive and donate electrons. The device further comprises a photon source for emitting photons onto the first **nucleic acid.** A charge **monitor** is in communication with the **electrode** for measuring the charge on the **electrode** or current flowing through the **electrode** as the first **nucleic acid** receives photons from the photon source which charge on said **electrode** is different in the presence of signal **nucleic acid.** The difference is indicative of the presence or absence of the signal **nucleic acid.**

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 23 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:573715 HCAPLUS
DOCUMENT NUMBER: 133:174225
TITLE: Method for producing addressed ligand matrixes on a support
INVENTOR(S): Livache, Thierry; Lesbre, Frederic
PATENT ASSIGNEE(S): Commissariat a l'Energie Atomique, Fr.
SOURCE: PCT Int. Appl., 36 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000047317	A1	20000817	WO 2000-FR289	20000208 <--
W: JP, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
FR 2789401	A1	20000811	FR 1999-1438	19990208 <--
FR 2789401	B1	20030404		
EP 1152821	A1	20011114	EP 2000-903748	20000208 <--
EP 1152821	B1	20040915		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2002538416	T2	20021112	JP 2000-598263	20000208 <--

PRIORITY APPLN. INFO.: FR 1999-1438 A 19990208 <--
WO 2000-FR289 W 20000208 <--

AB A method is described for producing addressed ligand matrixes on a support. A reservoir filled with a ligand and containing an **electrode** is used to deposit and **electrochem.** fix the ligand on a conducting support. The ligand can be a pyrrole-terminated

oligonucleotide or peptide that is fixed to the support by electrocopolymn. of the pyrrole group at the 5' position.
REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 24 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:344067 HCAPLUS
DOCUMENT NUMBER: 132:345119
TITLE: Multi-array, multi-specific **electrochemiluminescence** testing
INVENTOR(S): Wohlstadter, Jacob N.; Wilbur, James; Sigal, George; Martin, Mark; Guo, Liang-hong; Fischer, Alan; Leland, Jon
PATENT ASSIGNEE(S): Meso Scale Technologies, LLC, USA
SOURCE: U.S., 68 pp., Cont.-in-part of U.S. Ser. No. 402,076. CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 6
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6066448	A	20000523	US 1996-611804	19960306 <--
CA 2213854	AA	19960919	CA 1996-2213854	19960306 <--
CN 1186513	A	19980701	CN 1996-193840	19960306 <--
TW 555852	B	20031001	TW 1996-85102864	19960306 <--
ZA 9601925	A	19970805	ZA 1996-1925	19960308 <--
US 6207369	B1	20010327	US 1996-715163	19960917 <--
US 6140045	A	20001031	US 1997-814085	19970306 <--
US 6673533	B1	20040106	US 1997-932110	19970917 <--
US 2001021534	A1	20010913	US 2001-771796	20010129 <--
US 2004086423	A1	20040506	US 2003-693441	20031024 <--
PRIORITY APPLN. INFO.:			US 1995-402076 A2	19950310 <--
			US 1995-402277 A2	19950310 <--
			US 1996-12957P P	19960306 <--
			US 1996-611804 A2	19960306 <--
			US 1996-715163 A2	19960917 <--
			US 1997-932110 A3	19970917 <--

AB Materials and methods are provided for producing patterned multi-array, multi-sp. surfaces which are electronically excited for use in **electrochemiluminescence** based tests. Materials and methods are provided for the chemical and/or phys. control of conducting domains and reagent deposition for use in flat panel displays and multiply specific testing procedures. Anti-prostate specific antigen (PSA) antibody immobilized on a patterned gold **electrode** (preparation given) was used as an **electrochemiluminescent sensor** for immunoassay of PSA in serum samples.
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 25 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:323225 HCAPLUS
DOCUMENT NUMBER: 132:330587
TITLE: Microfabricated thick-film **electrochemical sensor** for **nucleic acid** determination
INVENTOR(S): Wang, Joseph; Cai, Xiaohua
PATENT ASSIGNEE(S): New Mexico State University Technology Transfer Corp.,

USA
SOURCE: U.S., 22 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 6063259	A	20000516	US 1997-872953		19970611 <--
PRIORITY APPLN. INFO.:			US 1996-19559P	P	19960611 <--

AB A thick-film sensing **apparatus** for **nucleic acid** determination and testing using potentiometric stripping anal., including two methods for **nucleic acid** detection at the microfabricated strips, both methods being designed for use with the thick-film sensing **apparatus** The present invention is applicable for broad use in **nucleic acid** anal., particularly for measurement of **nucleic acids** (e.g., **DNA** and **RNA**), and their sequences and interactions, and for detection of **DNA** damage, at thick-film **electrodes**, based on stripping potentiometry.

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 26 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:196527 HCAPLUS
DOCUMENT NUMBER: 132:247104
TITLE: An **apparatus** and a method for detecting gene with an **electrochemical sensor**
INVENTOR(S): Ishibashi, Mitsuru; Hashimoto, Koji; Ito, Keiko; Ishimori, Yoshio
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000083647	A2	20000328	JP 1998-256571	19980910 <--
JP 3515381	B2	20040405		
PRIORITY APPLN. INFO.:			JP 1998-256571	19980910 <--

AB A convenient and highly sensitive **apparatus** is provided for detecting gene with an **electrochem. sensor.** A single stranded **DNA** probe possessing a base sequence complementary to the objective gene for detection is fixed on an **electrode** surface. After the probe is reacted with a test body containing the gene denatured to single stranded chains, a double-stranded chain-recognizing body is bound to the **DNA** probe **hybridized** with the gene. The presence of the gene is confirmed by detecting this complex by an **electrochem.** measurement. The detection **apparatus** comprises a gene-detection **sensor** in which the **DNA** probe is fixed on the **sensor electrode** possessing an **electrode** pattern, a sample-holding vessel possessing a taper hole made of resin, and a mechanism for making these parts into a close contact. Detailed description of the diagram for the **apparatus**

assembly is given. Escherichia coli rDNA or HBV gene in a sample was detected with a high sensitivity by this method using Hoechst 33258.

L23 ANSWER 27 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:127047 HCAPLUS
DOCUMENT NUMBER: 130:179611
TITLE: **Electrochemical** reporter system with redox recycling for immunoassay and molecular biology procedures
INVENTOR(S): Macphee, Robert D.; Taylor, Clive R.; Hintsche, Rainer; Seitz, Rene
PATENT ASSIGNEE(S): University of Southern California, USA; Fraunhofer Institut Siliziumtechnologie
SOURCE: PCT Int. Appl., 44 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 9907879	A1	19990218	WO 1998-US16714		19980812 <--
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM					
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG					
US 6682648	B1	20040127	US 1998-105538		19980626 <--
CA 2300268	AA	19990218	CA 1998-2300268		19980812 <--
AU 9889039	A1	19990301	AU 1998-89039		19980812 <--
EP 1003905	A1	20000531	EP 1998-940857		19980812 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI					
JP 2001512691	T2	20010828	JP 2000-506361		19980812 <--
US 2002166764	A1	20021114	US 2002-120256		20020409 <--
PRIORITY APPLN. INFO.:			US 1997-55466P	P	19970812 <--
			US 1997-55759P	P	19970814 <--
			US 1998-105538	A	19980626 <--
			US 1998-105539	A	19980626 <--
			WO 1998-US16714	W	19980812 <--
			US 1999-249532	B1	19990211 <--

AB An immunochem. and mol. biol. endpoint reporter system in which reaction products, coupled to **electrochem.** active mols. susceptible to redox recycling or coupled to enzymes capable of proportional generation of said **electrochem.** active mols., are detected and/or quantitated using amperometry in conjunction with a silicon microchip possessing a closely spaced interdigitated array of nobel metal **electrodes.** The wells of a microtiter plate were treated successively with HIV p24 antigen, blocking buffer, patient serum, biotinylated Fc-Fab2 antibody fragments, avidin-β-D-galactosidase conjugate, and enzyme substrate, p-aminophenyl-β-D-galactopyranoside. Free **electrochem.** redox active p-aminophenol was determined by an interdigitated thin-film metal **electrode sensor.** The redox current clearly distinguished between pos. and neg. blood samples; in the pos. samples, it proportionally reflected differences in concentration of

p24 antibodies in the serum.
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 28 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1997:625648 HCAPLUS
DOCUMENT NUMBER: 127:313737
TITLE: Detection of molecules and molecule complexes
INVENTOR(S): Hintsche, Rainer; Paeschke, Manfred
PATENT ASSIGNEE(S): Fraunhofer Gesellschaft Zur Forderung Der Angewandten Forschung E.V., Germany; Hintsche, Rainer; Paeschke, Manfred
SOURCE: PCT Int. Appl., 24 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9734140	A1	19970918	WO 1997-DE494	19970312 <--
W: JP, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
DE 19610115	A1	19970918	DE 1996-19610115	19960314 <--
DE 19610115	C2	20001123		
EP 886773	A1	19981230	EP 1997-919270	19970312 <--
EP 886773	B1	20041013		
R: DE, FR, GB				
US 2002028441	A1	20020307	US 1998-142660	19981223 <--
PRIORITY APPLN. INFO.:			DE 1996-19610115 A	19960314 <--
			WO 1997-DE494 W	19970312 <--

AB A process for detecting mols. or mol. complexes is described in which a measurement probe is brought into contact with an ultra-**microelectrode** arrangement comprising at least two **electrode** structures configured in such a way that the distances between the different structures lie in the ultra-micro range; an alternating elec. field is created by application of an **elec. potential**; and the current or potential fluctuations caused by the species present or created in the measurement probe are measured. The process is especially useful for detecting large mol. complexes from immunoproteins or DNS mols.

L23 ANSWER 29 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1994:428612 HCAPLUS
DOCUMENT NUMBER: 121:28612
TITLE: Voltammetric sequence-selective **sensor** for target polynucleotide sequences
INVENTOR(S): Mikkelsen, Susan R.; Millan, Kelly M.; Spurmanis, Aleksandrs J.
PATENT ASSIGNEE(S): Concordia University, Can.
SOURCE: U.S., 8 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

US 5312527	A	19940517	US 1992-957602	19921006 <--
PRIORITY APPLN. INFO.:			US 1992-957602	19921006 <--

AB A voltammetric sequence-selective **sensor** for target polynucleotide sequences has an immobilized polynucleotide probe bound by one of its termini to an **amperometric electrode.** The immobilized probe includes a target region for binding a target polynucleotide sequences forming an immobilized heteroduplex having at least a **hybridized** region. The sequence-selective **sensor** of the detects the formation of immobilized heteroduplexes voltammetrically. The hybrid is preferably detected using a redox reaction involving tris(2,2'-bipyridyl) cobalt(III) perchlorate as a double-stranded **DNA**-specific ligand. The **sensor** can be used to detect a target sequence in a physiol. sample. Preparation of an **electrode** with an immobilized polynucleotide probe by activation of the **electrode** surface with 1-(3-dimethylaminopropyl)-3-Et carbodiimide and sodium N-hydroxysulfosuccinimide is described.

L23 ANSWER 30 OF 30 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1992:402174 HCAPLUS
DOCUMENT NUMBER: 117:2174
TITLE: Gene detection method and **apparatus**
INVENTOR(S): Hashimoto, Koji; Miwa, Keiko; Ishimori, Yoshio
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Eur. Pat. Appl., 28 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 478319	A1	19920401	EP 1991-308770	19910926 <--
EP 478319	B1	19970402		
R: DE, FR, GB, IT				
JP 05199898	A2	19930810	JP 1991-241315	19910920 <--
JP 2573443	B2	19970122		
PRIORITY APPLN. INFO.:			JP 1990-259011 A	19900928 <--
			JP 1991-90879 A	19910422 <--
			JP 1991-191868 A	19910731 <--

AB A gene detection method comprises contacting the single-stranded **nucleic acid** sample with a single-stranded **nucleic acid** probes that are immobilized on a carrier. A double-stranded (ds) **nucleic acid**-recognizing substance is also added to the system so that the carrier is able to phys. detect the presence of **hybridization** products. The carrier may be an **electrode** or an optical fiber so that the ds **nucleic acids** can be detected by **electrochem.** or optical means. A gene detection **apparatus** based on this method, which may optionally comprise a gene **sensor**-regenerating **apparatus** that dissocs. the ds **nucleic acids** formed on the surface of the gene **sensor**, is also disclosed. The method was exemplified by detecting the v-myc gene using a synthetic 20-mer probe immobilized on a basal plain pyrolytic graphite **electrode.** The gene can be detected in the order of pg in 30 min.

```
=> d que stat l21
L1   (         1)SEA FILE=REGISTRY ABB=ON  "NUCLEIC ACIDS"/CN
L2   (     21888)SEA FILE=HCAPLUS ABB=ON  ?SENSOR? AND (?CIRCUIT?(W)?BOARD? OR
                 ?APPARATUS?)
L3   (      6357)SEA FILE=HCAPLUS ABB=ON  L2 AND (?ELECTROD? OR L1 OR ?NUCLEIC?(
                 W)?ACID? OR ?MONITOR? OR ?POTENTIOSTAT? OR ?ELECT?(W)?POTENT?)
L4   (       234)SEA FILE=HCAPLUS ABB=ON  L3 AND ?HYBRIDIZ?
L5   (        41)SEA FILE=HCAPLUS ABB=ON  L4 AND (?PULS? OR ?AMPEROMETRIC? OR
                 ?MEMORY?(W)?CHIP? OR ?TOUCH? OR ?LIQUID?(W)?CRYSTAL? OR
                 ?ELECTROCHEM?)
L6   (         6)SEA FILE=HCAPLUS ABB=ON  L5 AND (?DATA?(W)?ANAL? OR ?PARAMETER?
                 (W)(?CHANGE? OR ?ADJUST? OR ?MODIFY?) OR ?SINGLE?(W)KEY? OR
                 KIT?)
L7   (        32)SEA FILE=HCAPLUS ABB=ON  L5 AND (DNA OR RNA OR MRNA OR
                 ?EXONUCLEASE?)
L8   (         3)SEA FILE=HCAPLUS ABB=ON  L5 AND ?TARGET?(3A)?NUCLEIC?(W)?ACID?

L9   (        34)SEA FILE=HCAPLUS ABB=ON  L6 OR L7 OR L8
L10           8 SEA FILE=HCAPLUS ABB=ON  L9 AND (?PATHOGEN? OR ?CANCER? OR
                 ?CARCIN? OR ?NEOPLASM? OR ?TUMOR? OR ?TUMOUR?)
L20           9 SEA L10
L21           9 DUP REMOV L20 (0 DUPLICATES REMOVED)


=> d ibib abs l21 1-9

L21  ANSWER 1 OF 9  BIOSIS  COPYRIGHT (c) 2005 The Thomson Corporation  on STN
ACCESSION NUMBER:   2004:419136  BIOSIS
DOCUMENT NUMBER:    PREV200400415933
TITLE:              Electrochemical DNA biosensor
                    for the detection and discrimination of herpes simplex Type
                    I and Type II viruses from PCR amplified real samples.
AUTHOR(S):          Kara, Pinar; Meric, Burcu; Zeytinoglu, Aysin; Ozsoz, Mehmet
                    [Reprint Author]
CORPORATE SOURCE:   Fac PharmDept Analyt Chem, Ege Univ, TR-35100, Bornova
                    Izmir, Turkey
                    ozsozs@pharm.ege.edu.tr
SOURCE:             Analytica Chimica Acta, (August 2 2004) Vol. 518, No. 1-2,
                    pp. 69-76. print.
                    ISSN: 0003-2670 (ISSN print).
DOCUMENT TYPE:      Article
LANGUAGE:           English
ENTRY DATE:         Entered STN: 27 Oct 2004
                    Last Updated on STN: 27 Oct 2004
AB   An electrochemical biosensor for the voltammetric
     detection of DNA sequences related to herpes simplex viruses
     (HSV) and discrimination of HSV Type I and Type II viruses from polymerase
     chain reaction (PCR) amplified real samples were described in this study.
     The biosensor relies on the covalent immobilization of the
     22-mer single stranded oligonucleotides (probe) related to both HSV Type I
     and Type II sequences and hybridization of these
     oligonucleotides with their complementary and four bases mismatch
     containing (four bases MM) sequences at pencil graphite electrodes
     (PEGE). The extent of hybridization between probe and target
     sequences was determined by using differential pulse voltammetry
     (DPV) and Meldola Blue (MDB) was used as the hybridization
     indicator. As a result of the interaction between MDB and DNA
     at PEGE surface, the MDB signal observed from probe sequence before
     hybridization and after hybridization with four bases MM
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sequence is lower than that observed after **hybridization** with complementary sequence. The difference between the MDB signals obtained from probe modified, hybrid modified and four bases MM modified PEGE were used to detect and discriminate two types of HSV from PCR amplified real samples. Numerous factors affecting the target **hybridization** and indicator binding reactions are optimized to maximize the sensitivity.

L21 ANSWER 2 OF 9 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2005:19560 BIOSIS
DOCUMENT NUMBER: PREV200500017267
TITLE: Multi-analyte single-membrane **biosensor** for the serotype-specific detection of Dengue virus.
AUTHOR(S): Zaytseva, Natalya V.; Montagna, Richard A.; Lee, Eun Mi; Baeumner, Antje J. [Reprint Author]
CORPORATE SOURCE: Dept Biol and Environm Engn, Cornell Univ, Ithaca, NY, 14853, USA
ajb23@cornell.edu
SOURCE: Analytical and Bioanalytical Chemistry, (September 2004) Vol. 380, No. 1, pp. 46-53. print.
ISSN: 1618-2642 (ISSN print).
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 22 Dec 2004
Last Updated on STN: 22 Dec 2004

AB A multi-analyte **biosensor** based on **nucleic acid hybridization** and liposome signal amplification was developed for the rapid serotype-specific detection of Dengue virus. After **RNA** amplification, detection of Dengue virus specific serotypes can be accomplished using a single analysis within 25 min. The multi-analyte **biosensor** is based on single-analyte assays (see Baeumner et al (2002) Anal Chem 74:1442-1448) developed earlier in which four analyses were required for specific serotype identification of Dengue virus samples. The multi-analyte **biosensor** employs generic and serotype-specific **DNA** probes, which **hybridize** with Dengue **RNA** that is amplified by the isothermal **nucleic acid** sequence based amplification (NASBA) reaction. The generic probe (reporter probe) is coupled to dye-entrapping liposomes and can **hybridize** to all four Dengue serotypes, while the serotype-specific probes (capture probes) are immobilized through biotin-streptavidin interaction on the surface of a polyethersulfone membrane strip in separate locations. A mixture of amplified Dengue virus **RNA** sequences and liposomes is applied to the membrane and allowed to migrate up along the test strip. After the liposome-target sequence complexes **hybridize** to the specific probes immobilized in the capture zones of the membrane strip, the Dengue serotype present in the sample can be determined. The amount of liposomes immobilized in the various capture zones directly correlates to the amount of viral **RNA** in the sample and can be quantified by a portable reflectometer. The specific arrangement of the capture zones and the use of unlabeled oligonucleotides (cold probes) enabled us to dramatically reduce the cross-reactivity of Dengue virus serotypes. Therefore, a single **biosensor** can be used to detect the exact Dengue serotype present in the sample. In addition, the **biosensor** can simultaneously detect two serotypes and so it is useful for the identification of possible concurrent infections found in clinical samples. The various **biosensor** components have been optimized with respect to specificity and sensitivity, and the system has been ultimately tested using blind coded samples. The **biosensor**

demonstrated 92% reliability in Dengue serotype determination. Following isothermal amplification of the target sequences, the **biosensor** had a detection limit of 50 **RNA** molecules for serotype 2, 500 **RNA** molecules for serotypes 3 and 4, and 50,000 molecules for serotype 1. The multi-analyte **biosensor** is portable, inexpensive, and very easy to use and represents an alternative to current detection methods coupled with **nucleic acid** amplification reactions such as **electrochemiluminescence**, or those based on more expensive and time consuming methods such as ELISA or tissue culture.

L21 ANSWER 3 OF 9 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2004:216595 BIOSIS
DOCUMENT NUMBER: PREV200400216624
TITLE: **Electrochemical** behavior and detection of hepatitis B virus **DNA** PCR production at gold **electrode.**
AUTHOR(S): Ye, Y. K.; Zhao, J. H.; Yan, F.; Zhu, Y. L.; Ju, H. X. [Reprint Author]
CORPORATE SOURCE: Department of Chemistry, Institute of Analytical Science, State Key Laboratory of Coordination Chemistry, Nanjing University, Nanjing, 210093, China
hxju@nju.edu.cn
SOURCE: Biosensors & Bioelectronics, (15 October 2003) Vol. 18, No. 12, pp. 1501-1508. print.
CODEN: BBIOE4. ISSN: 0956-5663.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 21 Apr 2004
Last Updated on STN: 21 Apr 2004

AB Sequence-known short-stranded hepatitis B virus (HBV) **DNA** fragment (181 bps) was obtained by PCR method. The strategy for its **electrochemical** detection was designed by covalently immobilizing single-stranded HBV **DNA** on gold **electrode** surface via carboxylate ester as a linkage between 3'-hydroxy end of **DNA** and carboxyl group of thioglycolic acid (TGA) self-assembled monolayer. The **hybridization** reaction on surface was evidenced by **electrochemical** methods using ferrocenium hexafluorophosphate (FcPF6) as an electroactive indicator. The interactions of Fc+ with single-stranded (ss) and double-stranded (ds) HBV **DNA** immobilized on TGA monolayer were studied. The difference between the responses of Fc+ at ss- and ds-**DNA**/Au **electrodes** suggested that this **hybridization biosensor** could be conveniently used to **monitor DNA hybridization** with a high sensitivity. AC impedance and XPS techniques have been employed to characterize the immobilization of ss-**DNA** on the gold surface.

L21 ANSWER 4 OF 9 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2004:60884 BIOSIS
DOCUMENT NUMBER: PREV200400061315
TITLE: A microfluidic **biosensor** based on **nucleic acid** sequence recognition.
AUTHOR(S): Kwakye, Sylvia; Baeumner, Antje [Reprint Author]
CORPORATE SOURCE: Department of Biological and Environmental Engineering, Cornell University, Ithaca, NY, 14853, USA
ajb23@cornell.edu
SOURCE: Analytical and Bioanalytical Chemistry, (August 2003) Vol. 376, No. 7, pp. 1062-1068. print.

ISSN: 1618-2642 (ISSN print).
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 28 Jan 2004
Last Updated on STN: 28 Jan 2004

AB The development of a generic semi-disposable microfluidic **biosensor** for the highly sensitive detection of **pathogens** via their **nucleic acid** sequences is presented in this paper. Disposable microchannels with defined areas for capture and detection of target **pathogen RNA** sequence were created in polydimethylsiloxane (PDMS) and mounted onto a reusable polymethylmethacrylate (PMMA) stand. Two different **DNA** probes complementary to unique sequences on the target **pathogen RNA** serve as the biorecognition elements. For signal generation and amplification, one probe is coupled to dye encapsulated liposomes while the second probe is coupled to superparamagnetic beads for target immobilization. The probes **hybridize** to target **RNA** and the liposome-target-bead complex is subsequently captured on a magnet. The amount of liposomes captured correlates directly to the concentration of target sequence and is quantified using a fluorescence microscope. Dengue fever virus serotype 3 sequences and probes were used as a model analyte system to test the **sensor.** Probe binding and target capture conditions were optimized for sensitivity resulting in a detection limit of as little as 10 amol muL-1 (10 pmol L-1). Future **biosensors** will be designed to incorporate a mixer and substitute the fluorescence detection with an **electrochemical** detection technique to provide a truly portable **microbiosensor** system.

L21 ANSWER 5 OF 9 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2003:518686 BIOSIS
DOCUMENT NUMBER: PREV200300520297
TITLE: Detection of Staphylococcus aureus enterotoxin A and B genes using a hand-held **electrochemical sensor.**
AUTHOR(S): Ait-Ichou, M. [Reprint Author]; Henkens, R.; Sultana, A. [Reprint Author]; Ulrich, R. G. [Reprint Author]; Ibrahim, M. S. [Reprint Author]
CORPORATE SOURCE: United States Army Medical Research Institute of Infectious Diseases, Fort Detrick, MD, USA
SOURCE: Abstracts of the General Meeting of the American Society for Microbiology, (2003) Vol. 103, pp. C-211. http://www.asmusa.org/mtgsrc/generalmeeting.htm. cd-rom. Meeting Info.: 103rd American Society for Microbiology General Meeting. Washington, DC, USA. May 18-22, 2003. American Society for Microbiology.
ISSN: 1060-2011 (ISSN print).
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 5 Nov 2003
Last Updated on STN: 5 Nov 2003

AB We developed two **electrochemical** PCR assays for detecting enterotoxin A and B genes (SEA, SEB) of Staphylococcus aureus. The assays are based on PCR amplification of the target sequences with biotinylated primers, **hybridization** of the biotin-labeled PCR products to a fluorescein-labeled probe, followed by immobilization of the hybrid to streptavidin-coated wells and detection with horse radish peroxidase (HRP)-conjugated anti-fluorescein antibody and HRP substrate on a hand-held **electrochemical** detector. The detection limit for

each assay was approximately 25 copies of the SEA or SEB genes. The assays were evaluated in two blinded studies, each with 81 samples that included genomic and cloned S. aureus **DNA** and genomic **DNA** from Alcaligens, Bacillus, Bacteroides, Bordetella, Burkholderia, Clostridium, Comanonas, Enterobacter, Enterococcus, Escherichia, Francisella, Haemophilus, Klebsiella, Listeria, Moraxella, Neisseria, Proteus, Pseudomonas, Salmonella, Serratia, Shigella, Streptococcus, Vibrio and Yersinia species. The SEA assay correctly identified all 25 samples that contained SEA **DNA**, and the SEB assay correctly identified all 18 samples that contained SEB **DNA** , i.e., both assays showed 100% sensitivity. Two false positive samples were obtained with the SEA assay and one false positive was obtained with the SEB assay, resulting in 96% specificity for the SEA assay and 98% specificity for the SEB assay. These results demonstrate the feasibility of performing probe-based detection of PCR products with a hand-held, **electrochemical** detection device and can provide a viable alternative to standard colorimetric PCR-Enzyme Immuno Assay (EIA). In addition, this **electrochemical** sensing device can easily be adapted to enzyme-based protein or **nucleic acid** -detection assays, offering a unique platform for both immunological and **nucleic-acid**-based assays.

L21 ANSWER 6 OF 9 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2002:8973 BIOSIS
DOCUMENT NUMBER: PREV200200008973
TITLE: A MEMS based **amperometric** detector for E. Coli bacteria using self-assembled monolayers.
AUTHOR(S): Gau, Jen-Jr; Lan, Esther H.; Dunn, Bruce [Reprint author]; Ho, Chih-Ming; Woo, Jason C. S.
CORPORATE SOURCE: Department of Materials Science and Engineering, University of California at Los Angeles, 405 Hilgard Avenue, 6531 Boelter Hall, Los Angeles, CA, 90095-1595, USA bdunn@ucla.edu; chihming@ucla.edu
SOURCE: Biosensors and Bioelectronics, (December, 2001) Vol. 16, No. 9-12, pp. 745-755. print.
CODEN: BBIOE4. ISSN: 0956-5663.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 28 Dec 2001
Last Updated on STN: 25 Feb 2002

AB We developed a system for **amperometric** detection of Escherichia coli (E. coli) based on the integration of microelectromechanical systems (MEMS), self-assembled monolayers (SAMS), **DNA** **hybridization**, and enzyme amplification. Using MEMS technology, a detector array was fabricated which has multiple **electrodes** deposited on a Si wafer and was fully reusable. Using SAMs, a monolayer of the protein streptavidin was immobilized on the working **electrode** (Au) surface to capture rRNA from E. coli. Three different approaches can be used to immobilize streptavidin onto Au, direct adsorption of the protein on bare Au, binding the protein to a biotinylated thiol SAM on Au, and binding the protein to a biotinylated disulfide monolayer on Au. The biotinylated thiol approach yielded the best results. High specificity for E. coli was achieved using ssDNA-rRNA **hybridization** and high sensitivity was achieved using enzymatic amplification with peroxidase as the enzyme. The analysis protocol can be conducted with solution volumes on the order of a few microliters and completed in 40 min. The detection system was capable of detecting 1000 E. coli cells without polymerase chain reaction with high specificity for E. coli vs. the bacteria Bordetella bronchiseptica.

L21 ANSWER 7 OF 9 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2001:43855 BIOSIS
DOCUMENT NUMBER: PREV200100043855
TITLE: Electropolymerization as a versatile route for immobilizing biological species onto surfaces: Application to **DNA** biochips.
AUTHOR(S): Bidan, Gerard [Reprint author]; Billon, Martial; Galasso, Katia; Livache, Thierry; Mathis, Gerard; Roget, Andre; Torres-Rodriguez, Luz Maria; Vieil, Eric
CORPORATE SOURCE: UMR 5819 (CNRS-CEA-Universite J. Fourier), CEA-Grenoble, 17, avenue des Martyrs, 38054, Grenoble Cedex, 09, France gbidan@cea.fr
SOURCE: Applied Biochemistry and Biotechnology, (November-December, 2000) Vol. 89, No. 2-3, pp. 183-193. print.
CODEN: ABIBDL. ISSN: 0273-2289.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 17 Jan 2001
Last Updated on STN: 12 Feb 2002

AB **Biosensors** based on electronic conducting polymers appear particularly well suited to the requirements of modern biological analysis-multiparametric assays, high information density, and miniaturization. We describe a new methodology for the preparation of addressed **DNA** matrices. The process includes an **electrochemically** directed copolymerization of pyrrole and oligonucleotides bearing on their 5' end a pyrrole moiety. The resulting polymer film deposited on the addressed **electrode** consists of pyrrole chains bearing covalently linked oligonucleotides (ODN). An oligonucleotide array was constructed on a silicon device bearing a matrix of 48 addressable 50 X 50 mum gold **microelectrodes.** This technology was successfully applied to the genotyping of hepatitis C virus in blood samples. Fluorescence detection results show good sensitivity and a high degree of spatial resolution. In addition, gravimetric studies carried out by the quartz crystal microbalance technique provide quantitative data on the amount of surface-immobilized species. In the case of ODN, it allows discrimination between **hybridization** and nonspecific adsorption. The need for versatile processes for the immobilization of biological species on surfaces led us to extend our methodology. A biotinylated surface was obtained by coelectropolymerization of pyrrole and biotin-pyrrole monomers. The efficiency for recognition (and consequently immobilization) of R-phycoerythrin-avidin was demonstrated by fluorescence detection. Copolymerization of decreasing ratios of pyrrole-biotin over pyrrole allowed us to obtain a decreasing scale of fluorescence.

L21 ANSWER 8 OF 9 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1999:391217 BIOSIS
DOCUMENT NUMBER: PREV199900391217
TITLE: **DNA electrochemical biosensor** for the detection of short **DNA** sequences related to the hepatitis B virus.
AUTHOR(S): Erdem, Arzum [Reprint author]; Kerman, Kagan; Meric, Burcu; Akarca, Ulus Salih; Ozsoz, Mehmet [Reprint author]
CORPORATE SOURCE: Faculty of Pharmacy, Analytical Chemistry Department, Ege University, 35100, Bornova-Izmir, Turkey
SOURCE: Electroanalysis, (June, 1999) Vol. 11, No. 8, pp. 586-588. print.
CODEN: ELANEU. ISSN: 1040-0397.

DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 28 Sep 1999
Last Updated on STN: 28 Sep 1999

AB **Nucleic acid hybridization** forms the basis for the diagnosis of genetic and infectious diseases. **Electrochemical biosensors**, coupling the inherent specificity of **DNA** recognition reactions with the high sensitivity of physical transducers, thus hold great promise for sequence-specific detection. An **electrochemical biosensor** for the voltammetric detection of **DNA** sequences related to the hepatitis B virus (HBV) is described. Synthetic single-stranded oligonucleotides ("probe") have been immobilized onto carbon paste **electrodes** with the adsorption at a controlled potential. The probes were **hybridized** with different concentrations of complementary ('target') sequences. The formed hybrids on the **electrode** surface were evaluated by differential **pulse** voltammetry using cobalt phenanthroline, (Co(phen)33+) as the indicator of **hybridization** reaction.

L21 ANSWER 9 OF 9 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1997:344858 BIOSIS
DOCUMENT NUMBER: PREV199799644061
TITLE: Detection of point mutation in the p53 gene using a peptide **nucleic acid biosensor.**
AUTHOR(S): Wang, Joseph [Reprint author]; Rivas, Gustavo; Cai, Xiaohua; Chicharro, Manuel; Parrado, Concepcion; Dontha, Narasaiah; Begleiter, Asher; Mowat, Michael; Palecek, Emil; Nielsen, Peter E.
CORPORATE SOURCE: Dep. Chem. Biochem., New Mexico State Univ., Las Cruces, NM 88003, USA
SOURCE: Analytica Chimica Acta, (1997) Vol. 344, No. 1-2, pp. 111-118.
CODEN: ACACAM. ISSN: 0003-2670.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 11 Aug 1997
Last Updated on STN: 11 Aug 1997

AB A 17-mer peptide **nucleic acid** (PNA) is used as the recognition layer of an **electrochemical biosensor** for detecting a specific mutation in the p53 gene. The performance of the PNA-derived **biosensor** is compared with that of its **DNA** counterpart. The significantly higher specificity of the PNA probe greatly improves the detection of a single point mutation, found in many types of **cancer.** Factors influencing the surface immobilization of the PNA probe, its **hybridization** to the p53 target sequence, and the chronopotentiometric detection step, are explored and optimized. This and similar developments hold promise for the diagnosis and management of **cancer.**